The Effect of Ionizing Radiation on the Electrochemical Activity of ... ... Co-
ated With Semiconducting Oxide Films

chromium, the mechanism of conductivity depending on the holes
(films of the p-type), i.e.in distilled water, 3% NaCl and
0 : NaOH. Irradiation with electrons reduces the excess tension
of the cathodic and anodic reaction and accelerates its rate In
addition, the process is reversible: after the end of irradia-
tion the excess tension and rate of the anodic and cathodic re-
action attain their initial values. In general, these results
hold for all metals under investigation which are coated with
films of the n- and p-type in all electrolytes used Metals with
films of the n- and p-type react during irradiation in a way
quite different from that of an anodic reaction but the authors
did not state such a difference as far as cathodic reactions are
concerned. The results obtained are illustrated in a diagram.
The cathodic reaction occurs on the surface of the semiconductor
with the participation of electrons, whereas holes are required
for an anodic reaction on the surface of the semiconductor On
the basis of these data the aforementioned difference in the
anodic behavior of metals coated with films of the n- and p-type
may be explained as follows: during irradiation the majority of

Card 2/4

SOV/20-125-1-37 6?

The Effect of Ionizing Radiation on the Electrochemical Activity of Metals Coated With Semiconducting Oxide Films

oxide semiconductors usually retain their type of conductivity, even if the current carrier is excited from the valence range with the formation of a hole-electron couple. It results from the experiment that this is brought about due to the establishment of the improper carriers on the additional local levels arising from impurities or defects in the semiconductor. Consequently, the limitation of the improper charge carriers (holes) must prevent the anodic oxidation from being accelerated during irradiation of the anodic metal to be polarized. Such observations were made indeed during the irradiation of polarized zirconium and titanium at low densities of the polarizing current. The most important electro-physical properties of the semiconducting layer may be taken into account by introducing a quantity which characterizes the position of the Fermi level with respect to the energy ranges of the semiconductor. The authors thank P. Ya. Glazunov and the collective directed by him for assistance in the experiment. There are 2 figures, 1 table, and 5 references, 3 of which are Soviet.

Card 3, 4

The Effect of Ionizing Radiation on the Electrochemical Activity of Metals Coated With Semiconducting Oxide Films

PRESENTED: November 27, 1958, by A. N. Frumkin, Academician

SUBMITTED: November 27, 1958

Card 4/4

S/844/62/000/000/033/129
D214/D307

AUTHORS: Oshe, Ie. K. and Rozenfel'd, I. L.

TITLE: The influence of electron irradiation on the electroche-
mical and corrosion behavior of metals

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khi-
mii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, ...
171-206

TEXT: The electrochemical and corrosive effects brought on by
the exposure of electrodes to 0.8 Mev electron radiation of current
density 10 μa/cm² was studied. By irradiating an oxide ...
exhibiting p-type conductivity, the anode reaction goes through
the valency zone of the oxide and the electron holes participate in
the reaction. The rate of reaction was faster and the overvoltage
(η) was lower than in electrodes exhibiting n-type conductivity in
their oxide layer. The influence of the type of conductivity ...
and on the reaction rate in cathode reactions was not determined.
The build-up of the radiochemical current (i) and its fall, after

Card 1/2

The influence of ...

the irradiation was terminated, was not instantaneous ...
slow filling of the electron holes and the thermal ...
the majority of carriers. The time-current curves ...
to those obtained for irradiated, dry photoconductors. ...
I was greater than the number of liberated electrons ...
crease was defined as the amplification coefficient, (α), ...
tity α is thus a measure of electrons liberated for every ...
electron participating in the electrochemical reaction. ...
the oxide film on the irradiated electrode, the ...
weaker is the corrosive action of the radiation. ...
current also decreases as the concentration of ... in the ...

becomes lower. There are 5 figures and 5 tables.

ASSOCIATION: Institut fizicheskoy khimii AN SSSR (Institut
             Physical Chemistry, AS USSR)

Card ...

PRUSLIN, Zalman Mendelevich, kand. tekhn. nauk; BURGVA, Margarita
Aleksandrovna, inzh.; SHEIN, D.N., nauchn. red.;
KOBRINSKAYA, M.V., red.

[Radio engineering and electronics] Radiotekhnika i elekt-
ronika. Moskva, Vysshaia shkola, 1965. 370 p.
(MIRA 18:3)

MALINSKIY, Vladimir Davidovich; OSHER, David Naumovich;
    TEPLITSKIY, Lev Yakovlevich; VARGANOV, N.O., red.

[Radio equipment tests] Ispytaniia radioapparatury. Mo-
skva, Energiia, 1965. 439 p.   (MIRA 18:8)

VOLOKHOVA, V.A.; OSHER, I.N.

[Bridges for direct and alternating currents] Mosty postoiannogo i peremenno-
go toka. Moskva, Gos. energ. izd-vo, 1951. 166 p.   (MIRA 6:3)
                                                    (Electric measurements)

OSHER, I.B.

Calculation of errors in measuring transformers. Izm. tekh.
no.2:56 Mr-Ap '55.   (MIRA 8:9)
          (Electric transformers)

OSHER, I.N.

Operation of single-phase meters at reduced voltage. Izm.tekh.no.5:
77-78 S-0 '56.   (MIRA 10:2)
          (Electric meters)

OSHER, I.N.

Correction factors for multirange meters. Izm. tekh. no.2:81-83
Mr-Ap '57.   (MIRA 10:6)
                              (Electric meters)

AUTHOR: Osher, I.N.   SCV-115-58-4-30/45

TITLE: Testing a Three-phase Apparatus for Checking Electric
              Energy Counters (Izpytaniye trekhfaznykh ustanovok dlya
              poverki schetchikov elektricheskoy energii)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 4, pp 72-73   (USSR)

ABSTRACT: The article lists the checking procedure and the technical
              requirements for a three-phase apparatus used to check elec-
              tric energy counters, as worked out by the Komitet standar-
              tov, mer i izmeritel'nykh priborov (The Committee for Stan-
              dards, Measures and Measuring Instruments).

              1. Electrical energy--Measurement

Card 1/1

9(7)

SOV/115-5?-7-1? ?

AUTHOR: Osher, I.N.

TITLE: The Automatic Testing Device of the "Elektrosch-- chik" Plant (Avtomaticheskaya poverochnaya ust- novka zavoda "Elektroschetchik")

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 7, pp 7?-7. ?????

ABSTRACT: At the Leningradskiy elektromekhanicheskiy zav : (Leningrad Electromechanical Plant) the automat-d equipment for adjusting electric meters was intr: duced which was designed by the Vsesoyuznyy nau.h. issledovatel'skiy institut elektropromyshlen:st. - VNIIEP- (All-Union Scientific Research Institut- : the Electric Industry). Further there are automt: devices of a plant in Vil'nyus and the highly pr:. ductive adjusting stands of the Moscow plant 'Elektr: schetchik". The latter were also introdued at the Mytishchi plant. The automatic test stands of the Moskovskiy elektromekhanicheskiy zavod "Elektrosche- chik" (Moscow Electromechanical Plant "Elektrosche-

Card 1/3   chik") are used for the State inspection of th: .

SOV/115-5?-7-1?/??

The Automatic Testing Device of the "Elektroschetchik" Plant

phase electric meters. The development of auto-
matic equipment for adjusting single-phase electric
meters according to Yu.G. Lipshteyn's system by the
Moscow plant "Elektroschetchik" is another step for-
ward. The VNII Komiteta standardov, mer i izmeritel
nykh priborov (All-Union Scientific Research Institute
of the Committee for Standards, Measures and Measur-
ing Instruments) considers to introduce the automatic
equipment of the Moscow plant "Elektroschetchik" also
at other plants. The author describes the automatic
equipment for adjusting three-phase electric meters.
It consists of a hexagonal drum, shown by figure 1
to each side of which two meters are fixed for ad-
justing. The control equipment is located in two
cabinets, shown by figure 2. Figures 3 and 4 show
circuit diagrams of this equipment. The meters are

Card 2/3

SOV/11?-?-?-? ?

The Automatic Testing Device of the "Elektroschetchik" P...

checked and adjusted automatically at different
loads. Provisions were made to check the proper
functioning of the automatic equipment   There are
2 photographs and 2 circuit diagrams.

Card 3/3

9(3)
AUTHOR: Isher, I. M.

TITLE: The Quality of Electric Meters (O kachestve elek-
               tricheskikh schetchikov)

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 4, p 40 ("USSR

ABSTRACT: In 1958, the VNII Komiteta standartov, mer i izmeri-
               tel'nykh priborov (All-Union Scientific Research
               Institute of the Committee of Standards, Measures
               and Measuring Instruments) conducted an investiga-
               tion of the deficiencies of electric meters present-
               ly produced in the USSR. In December 1958, a con-
               ference was convened at VNIIK with the participation
               of representatives of manufacturing plants, other
               organizations, Gosplan RSFSR, and representatives
               of the Moscow City and Oblast' administrations.
               The conference participants approved the suggestions
               for improving the mechanical and electrical parts
               of the meters. For example, in rural areas there
Card 1/2   is a high number of meter failures, because of
               lighting overloads. The standardization of meters

The Quality of Electric Meters   SOV/115-59-1-21/??

parts and their interchangeability was emphasized.
The deficiencies of electric meters were found in
the production of the Moscow, Leningrad, Vil'nius
and Mytishchi plants. It is planned to call
another conference of the representatives of the
manufacturing plants for considering the sugges-
tions of the conference. An editorial note says
that the periodical "Izmeritel'naya tekhnika" re-
ceived letters dealing with the deficiencies of
electric meters. For example P.A Maslovskiy,
laboratory chief of the Krasnodar 'Energosbyt", com-
plained about the inadequate number of spare parts
for electric meters, whereby there are no spare
parts available at all for meters which are no
longer produced. P.A Maslovskiy advises convening
an All-Union conference on electric meters in 195?.

Card 2/2

24 (3)

AUTHOR: Osher, I. N.   SOV/115-59-8-

TITLE: The Error in Measuring   Reactive Power by Two
             Wattmeters

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 8, pp 32 - 34
             (USSR)

ABSTRACT: Measuring the reactive power by two wattmeters, ac-
             cording to the circuit arrangement shown in Figure
             is based on the assumption that the zero point of the
             Y-connection is located in the center of an equilate-
             ral triangle of linear voltage vectors. In practice,
             this conditions cannot be satisfied completely, since
             there is always the possibility of an inequality of
             among the resistances forming the artificial zero
             point. The author presents a formula for determining
             the error of reactive power measurements when the
             circuit arrangement shown in Figure 1 is used:

$$\Delta = \left[0.2\,(a + b) + 0.3(a - b)\,\mathrm{ctg}\,\varphi \right] \%$$

             This formula shows the dependence between the error
Card 1/3   of the reactive power measurement according to Figu-

SOV/115-59-8-16/33

The Error in Measuring the Reactive Power by Two Wattmeters

re 1 and the deviations of the resistance (expressed
in %) of the parallel wattmeter circuits on the re-
sistance R at any value of the phase shift angle φ.
The author concludes that the deviation of wattmeter
resistances from the resistance R (Figure 1) must
not exceed $\pm$d%, if the reactive power measurement
error, caused by the unequality of resistances for-
ming the artificial zero point, must be kept within
$\pm$d%. The deviation of parallel wattmeter circuit
resistances may have identical or different signs.
The points, whose coordinates correspond to the afore-
mentioned conclusion, are located within the limits
of a square, based on the error parallelogram, shown
in Figure 5. Instructions 195-54 for checking active
and reactive power meters contain the recommendation
for checking three-phase reactive power meters by con-
necting two wattmeters to the phase voltages using
the zero point formed in a three-phase device by the
regulator or the transformers. In the author's
opinion, it is more correct to establish the zero
Card 2/3   point according to the circuit arrangement shown in

SOV/115-59-8-16/33

The Error in Measuring the Reactive Power by Two Wattmeters

Figure 1. This was taken into consideration in the new edition of instructions 195-54, although no tolerances were indicated for the resistance differences of parallel wattmeter circuits. There are 1 circuit diagram, 4 diagrams and 1 Soviet reference.

Card 3/3

9 (2)

06190

SOV/115-59-11-18/?

AUTHORS: Osher, I.N., Bobkovskaya, I.I.

TITLE·   Checking Reference Induction Meters by a Thermoelectric Method

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 11, pp 45-46

ABSTRACT: The authors used a UV-1 potentiometric device manufactured by the "Etalon" plant for measuring the power when checking reference electric meters, since the method of using a wattmeter and a seconds counter is not sufficiently accurate. The UV-1 device is designed for checking wattmeters by a thermoelectric method. The power measuring error does not exceed $\pm$ 0.05% at $\cos \varphi = 1$ and $\pm$ 0.1% at $\cos \varphi = 0.5$ at frequencies ranging from 50 to 1000 cps. The electric meters received current from two synchronous generators driven by a motor which was fed from batteries. The frequency was checked by a class 0.2 frequency meter. Four reference electric meters were checked according to this method. The electric meters were selected from 18 identi-

Card 1/2

06190
SOV/115-59-11-18/76

Checking Reference Induction Meters by a Thermoelectric Method

cal meters produced by the CDC plant in 1958. In addi-
tion, the readings of all 18 meters were compared
among each other at different loads. The authors es-
tablished the possible error rating of this method.
The results of the investigation show that it is pos-
sible to use the UV-1 device for checking ac referen-
ce meters There is 1 table.

Card 2/2

OSHER, I.N.

Using the method of voltage summing in testing d.c. wattmeters.
Izm.tekh. no.12:48-49 D '61.   (MIRA 15:1)
(Wattmeter--Testing)

OSHER, I.N.

Errors of oscillating meters. Izm. tekh. no.9:37-41 S '64.
(MIRA 18:3)

OSHER, I.N.

Measurement of the phase error of an electrodynamic oscillating
meter at a commerical frequency. Trudy inst. Kom. stand., mer. i
izm. prib. no.74:111-125 '63.   (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta
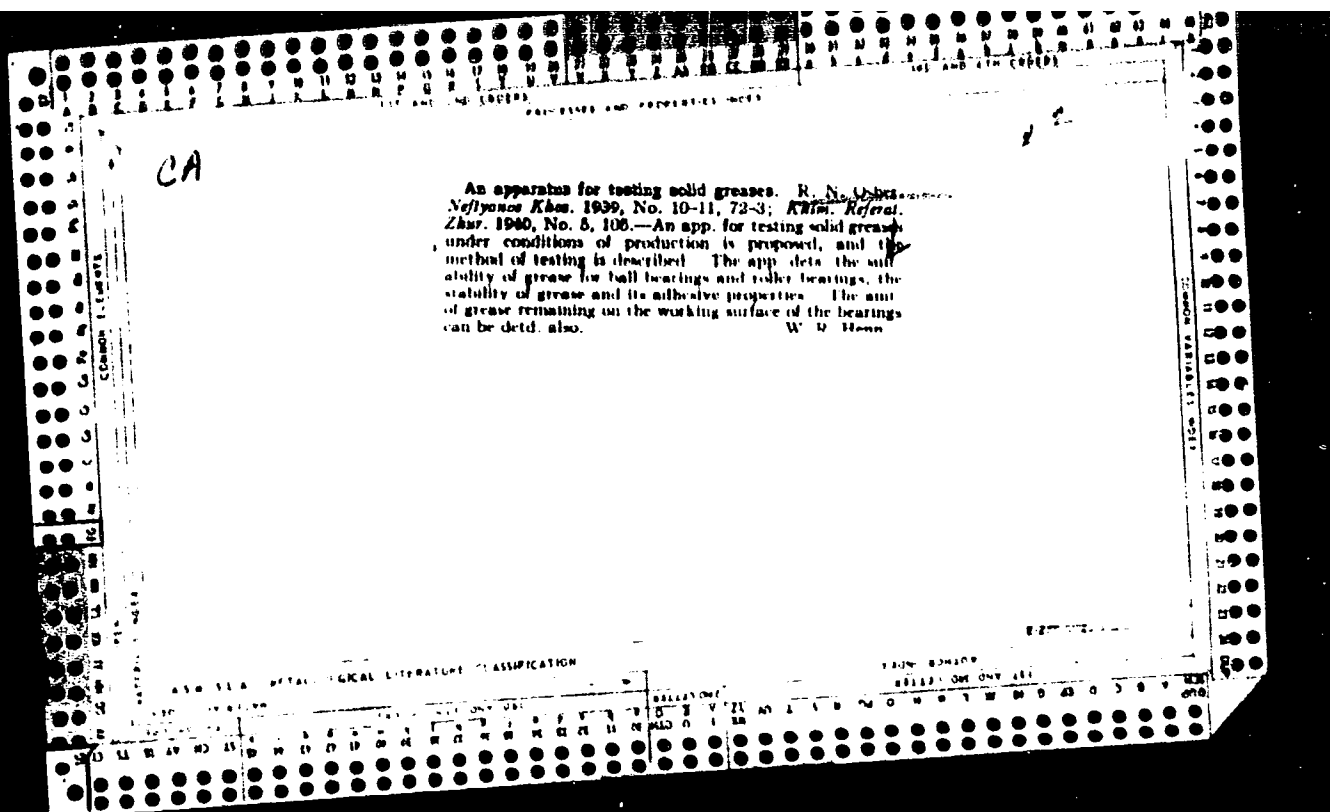standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov
SSSR.

OSHER, M. I.

KUN-10 mounted universal sweep rake. Biul.tekh.-ekon.inform.Gos.
nauch.-issl.inst.nauch. i tekh.inform. no.3:53-55 '63.

(MIRA 16:4)

(Harvesting machinery)

The raw material used in the preparation of greases. B. N. ... Neftianoe Khoz 1938, No. 8, 44 41. It is recommended to use slack wax as one of the ingredients in the greases. The Russian specifications are discussed.
A. A. Bochtlingk

A S B S L A   METALLURGICAL LITERATURE CLASSIFICATION

Utilization of the mineral oil acid sludge. R. N.
Oshtr. *Neflyanoe Khos.* 1938, No. 8, 46. It is recom-
mended to utilize in greases the inhibitors which were
removed from heavy lubricating oils in the course of
refining or overrefining with H_2SO_4. Thus the sludge is
heated to 100° followed by decantation. The product
obtained was neutral and free of SO_3. Grease prepd. with
the above ingredient was stable with a fatty acid content
of only 7%, and did not break up into layers when left in
the air after heating to 170° for the removal of water.

A. A. Hochtlingk

CA

An apparatus for testing solid greases. R. N. Ushra......
Neftyanoe Khoz. 1939, No. 10-11, 73-3; *Khim. Referat. Zhur.* 1940, No. 5, 106.—An app. for testing solid greases under conditions of production is proposed, and the method of testing is described. The app. detn. the suitability of grease for ball bearings and roller bearings, the stability of grease and its adhesive properties. The amt. of grease remaining on the working surface of the bearings can be detd. also.   W. D. Henn

OSHER, R. N., BAGRYANTSEVA, I. I., and KAYLINA, M. M.

"The Oxidation of Petroleum as a Raw Material for the Production fo Greases",
p 198, in the Monograph "Investigation and Use of Petroleum Products", edited
by N. G. Puchkov, Gostoptekhizdat, Moscow-Leningrad, 1950.

OSHER, P. N.

Izgotovlenie i primenenie smazochno -okhlazhdaiushchikh zhidkostei, ispol'zuemykj rri obrabotke metallov resaniem; pod red. P. A. Metindera. Moskva, Gostoptekhizdat, 1960. 100 p. diagrs. Bibliography:p.(107).

Manufacture and use of coolants and their application to metal cutting.

DLC: TJ1230.C8

CC: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1963.

OSHER, I. N. and BALAROV, F. V.

"Determining the Content of Hydroxy Acid in Oxidized Paraffin", p 217, in the Monograph "Investigation and Use of Petroleum Products", edited by K. I. Pachkov-Gostoptekhizdat, Moscow-Leningrad, 1950.

OSHER, R. N., BAZAROVA, F. B. and KHO... ...YA, M. I.

"Detection of Foreign Bodies in Greases without Using Acid Analysis", p 22?., in the Monograph "Investigation and Use of Petroleum Products", edited by N. G. Puchkov, Gostoptekhizdat, Moscow-Leningrad, 1950.

C.Sh....., A. M.

VLADZIYEVSKIY, A.P., kandidat tekhnicheskikh nauk; D'YACHKOV, A.K., doktor
    tekhnicheskikh nauk, professor; ZAYCHENKO, I.Z., kandidat tekhniche-
    skikh nauk; KAMINER, N.M., inzhener; MAZYRIN, I.V., inzhener; NIBERG,
    N.Ya., kandidat tekhnicheskikh nauk; OSHER, R.N., inzhener; DIKUSHIN,
    V.I., akademik, redaktor; GLINER, B.M., redaktor, inzhener; MODEL',
    B.I., tekhnicheskiy redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

    [Lubrication of metal cutting machines; reference manual] Smaska metal-
    lorezhushchikh stankov; spravochnoe posobie. Moskva, Gos. nauchno-
    tekhn.izd-vo mashinostroit. lit-ry. 1956. 210 p.   (MIRA 9:5)
             (Lubrication and lubricants) (Machine tools)

OSHER, R. N. and ZAYTSEVA, L. D.

"Determination of the Saponification Number of Petroleum Products and the Content of Free Fats in Consistent Lubricants"   p. 185 in book Study andUse of Petroleum Products, Moscow, Gostoptekhizdat, 1957, 213pp.

This collection of articles gives results of the sci. res. work of the All-Union Sci. Res. Inst. for Processing of Petroleum and Gas for the Production of Synthetic Liquid Fuel.

OSHER, R.N.; ZAYTSEVA, L.D.

Determining the saponification number of petroleum products and the amount of free oils in greases. Trudy VNII NP no.6:185-188 '57.

(MIRA 10:10)

(Saponification)   (Lubrication and lubricants)

EMINOV, Ye.A.; OSHER, R.N.; PATSUKOV, I.P.; CHEKAVTSEV, N.A.; MAZYRIN, I.V.;
FUKS, G.I.; VLADZIYEVSKIY, A.P.; PATSUKOV, I.P.; AVDEYEV, A.V.;
LOPOYAN, G.S.; PETROV, G.G.; KOZOREZOVA, A.A.; LISITSKIY, K.Z.;
YAKOBI, M.A.; BELYANCHIKOV, G.P.; IVANOV, V.S.; VORONOV, N.M.; RU-
MYANTSEV, V.A.; ZILLER, G.K.; BEREZHNAYA, V.D.; LEVINA, Ye.S.,
vedushchiy red.; TROFIMOV, A.V., tekhn.red.

[Manual on the uses and consumption standards of lubricants] Spra-
vochnik po primeneniiu i normam raskhoda smazochnykh materialov.
Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry.
1960.   703 p.   (MIRA 13:4)
            (Lubrication and lubricants)

LUR'YE, B.G.; OSHER, R.N.

Oils providing an even feed of machine-tool tables. Stan.i
instr. 31 no.7:16-20 Jl '60.   (MIRA 13:7)
           (Machine tools--Lubrication)

ANDREYEV, G.S., kand. tekhn. nauk; BOKUCHAVA, G.V., kand. tekhn. nauk, dots.; BRAKHMAN, L.A., inzh.; BUDNIKOVA, A.V., inzh.; GORDON, M.B., kand. tekhn. nauk, dots.; ZHAVORONKOV, V.N., inzh.; KARZHAVINA, T.V., kand. tekhn. nauk; KOROTKOVA, V.G., inzh.; KORCHAK, S.N., inzh.; KLUSHIN, M.I., kand. tekhn. nauk, dots.; KUZNETSOV, A.P., kand. tekhn. nauk, dots.; KURAKIN, A.V., inzh.; LATYSHEV, V.N., inzh.; OL'KHOVSKIY, V.N., inzh.; ORLOV, B.M., kand. tekhn. nauk, dots.; OSHER, R.N., inzh.; PODGORKOV, V.V., inzh.; ; SIL'VESTROV, V.D., kand. tekhn. nauk [deceased]; TIKHONOV, V.M., inzh.; TROITSKAYA, D.N., inzh.; KHRUL'KOV, V.A., inzh.; LESNICHENKO, I.I., red. izd-va; SOKOLOVA, T.F., tekhn. red.; GORDEYEVA, L.P., tekhn. red.

[Lubricating and cooling fluids and their use in cutting metals] Smazochno-okhlazhdaiushchie zhidkosti pri rezanii metallov i tekhnika ikh primeneniia. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 291 p.   (MIRA 15:1)
            (Metalworking lubricants)

S/081/62/000/006/092/117
B162/B101

AUTHOR: Osher, R. N.

TITLE: Additives ensuring uniform slow movement of parts of metal-
              cutting lathes

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 6, 1962, 543, abstract
              6M268 (Sb. "Prisadki k maslam i toplivam". M.,
              Gostoptekhizdat, 1961, 125-127)

TEXT: As anti-jerk additives to industrial oils, various salts of the
higher aliphatic acids are used, including Al stearate (I) and Al
oleostearate (II) (in a concentration of 1.6-2.7%); the latter was used in
the form of the plastic grease AMC-3 (AMS-3), containing 18% II. It is
shown that industrial oils with additives I and II give a low, virtually
constant coefficient of friction, which ensures evenness in slow movements
over the whole speed range and the necessary precision of calculated
movements. Additives consisting of Li stearate and of Ca salts of acids
separated from cottonseed oil and hydrogenated fat proved ineffective. On
the basis of the results obtained, an oil was developed, ВНИИ НП-401
(VNII NP-401) (ТУ НП no. 26-60 (TU NP no. 26-60)), ensuring evenness in
Card 1/2

Additives ensuring uniform ...

S/081/62/000/006/092/117
B162/B101

slow movements of parts of metal-cutting lathes and consisting of mineral
oil of medium viscosity with viscosity with about 2% of I and 0.015% of an
anti-foam additive, liquid ПМС-200A (PMS-200A) (ВТУ no. 16-60 (VTU
no. 16-60)). [Abstracter's note: Complete translation.]

Card 2/2

SHER, Revekka Naumovna; REBINDER, P.A., akademik, red.;
LEVINA, Ye.S., ved. red.; VORONOVA, V.V., tekhn. red.

[Production and use of lubricating and cooling fluids
(for metal cutting)] Proizvodstvo i primenenie sma-
zochno-okhlazhdaiushchikh zhidkostei (dlia obrabotki
metallov rezaniem). Izd.3., perer. i dop. Pod red. P.A.
Rebindera. Moskva, Gostoptekhizdat, 1963. 225 p.
(MIRA 16:12)

(Metalworking lubricants)

EMILOV, Ye.A.; SILITSII, V.V.; CSHEL, ..N.; CHEKAVTSEV, N.A.; PATSUKOV,
        I.P.; USOV, A.A.; FIKS, G.I.; VLADZIEVSKIY, A.I.; AVDEYEV, A.V.;
        ARZULANOV, Sh.F.; PETKOV, G.G.; KOZOREZOVA, A.A.; LISITSKII,
        K.Z.[deceased]; YAKOBI, I.A.; BELYANCHIKOV, G.F.; IVANOV, V.S.;
        VOROHOV, I.N.; RUMYANTSEV, V.A.; TROFIMUK, V.A.; BERSHTADT,
        Ya.A.; ZILLER, G.K.; SERGEIEVA, V.D.; KLEYMENOVA,K.F., ved.red.;
        TITSKAYA, B.F., ved. red.

[Manual on the use and norms for the expenditure of lubricants]
Spravochnik po primeneniiu i normam raskhoda smazochnykh mate-
rialov. 2. perer. i dop. izd. Moskva, Khimiia, 1964. 855 p.
                                              (MIRA 18:3)

OSHER, VN

Category : USSR/Radiophysics - Statistical Phenomena in Radiophysics   I-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4444

Author   : Osher, V.N.
Title   : On the Bandwidth of a Communication Channel

Orig Pub : Tr. Televiz.fil.-labor. M-vo radiotekhn. prom-sti SSSR, 1956, vyp. 1,
           69-74

Abstract : A proof that differs somewhat from Shannon's is given for the equation
           for the bandwidth C of a channel. Instead of the Shannon definition,
           according to which $C = \lim \log N (T)/T$, where $N (T)$ is the number of
           possible signals of $T \to \infty$ duration T, the author introduces a more re-
           fined definition of the bandwidth of a channel, namely C = maximum of
           $T \to \infty \lim \log N (T)/T$, i.e., C is the value that the limit assumes in
           the case of such a sequence of values of T, at which the above limit is
           a maximum. It is shown that the bandwidth and the maximum value of the
           entropy per second are identical, with the condition for the maximum
           entropy per second being determined with the method of Lagrange's
           undetermined multiplers.

Card   : 1/1

OSHERENKO, S.N., inzh.

Using nepheline slime, an industrial waster material, as
a binding material in the manufacture of large slag concrete
blocks. Biul.tekh.inform. 3 no.4:10-12 Ap '57.   (MIRA 10:10)
                    (Concrete blocks)

OSHEROV, D.

Automotive transportation units and the trust.   Avt.transp. 40
(MIRA 15:2)
no.2:53 F '62.
(Transportation, Automotive)

OSHEROV, M.I., inzhener-podpolkovnik

The flight attacks in the dusk. Vest.Vozd.Fl. no.1:31-34 Ja '61.
(MIRA 13:12)

(Aerial warfare)

OShERoV, R. A.

23355 vorshvaniye bobrika kardolentoy. - Soavr: L. T. $\sqrt{} 1 \underline{7}$ taubkin. tekstil.
        prom-st', 19--, N . 4, s. 2--2

So: L.To: N. 31, 19--

OSHEROV, S.Ya., kandidat tekhnicheskikh nauk; BORISOV, V.P.; KAPLUN, A.V., inzhener.

Superiority of turbine drives for feed pumps of electric power stations. Energomashinostroenie 3 no.9:14-18 S '57.   (MIRA 10:10)
(Turbines)

OSHEROV, S.YA.

114-11-8/10

AUTHOR: Osherov, S.Ya., Candidate of Technical Sciences, and
           Dembo, G.I., Engineer.

TITLE: The Paths of Development of Turbo-pump Construction at the
           "Ekonomayzer" Works. (Puti razvitiya turbonasosostroyeniya
           na zavode "Ekonomayzer")

ABSTRACT: In 1945, it was decided to specialise the "Ekonomayzer"
            Works in the manufacture of turbo-pumps. Nine pump designers
            were transfered from the Leningrad Metal Works (LMZ) and since
            then the staff has rapidly grown until there are now 150 des-
            igners and investigators.
               The works produced a series of feed pumps, type ПТ-35, for
            steam conditions of 35 atm. and 400 °C and others. The produ-
            ction of these types of turbo-pumps was later passed on to the
            Khabarovsk Engineering Works (Khabarovskiy Mashinostroitelnyy
            Zavod). New types of turbo-pumps were developed for shipbuild-
            ing, also vertical and horizontal feed pumps running at speeds
            up to 10 000 r.p.m. and many other kinds. Finally feed, booster,
            and condensate pumps have been built in a single set, illustrated
            in Fig.1. The combination of three pumps in one set made it
Card 1/4 possible to produce a compact lightweight and economical set

114-11-8/10

The Paths of Development of Turbo-pump Construction at the
"Ekonomayzer" Works.

which can work with variable steam conditions. The driving
turbine works at speeds of 4 000 - 8 000 r.p.m. A number of
difficult problems had to be solved in the design of this set
in order to overcome cavitation problems and to remove solid
particles from the water used to lubricate the lower bearing
of the feed pump. The feed pump is on the same shaft as the
turbine and the condensate and booster pumps are driven through
reduction gearing with a ratio of six to one.

The need for turbine-driven feed pumps in modern power
stations has caused the designers of the works to develop con-
tinually-operating turbo-pumps. Such a turbo-pump was manu-
factured in 1956; its characteristics are given in Fig.2. So
far, it has operated successfully for several thousand hours at
the Shchekinsk Power Station.

The next task of the works was to develop continuously-
operating feed pumps for higher steam conditions intended for
providing feed for boilers in high-pressure power stations.
The works has designed a new turbo-pump, type OBПT-500, with an
output of 500 m^3/h at a pressure of 180 kg/cm^2 and a temperature
of 160 $^\circ$C. The turbine is driven by steam at a pressure of

Card 2/4 130 kg/cm^2 absolute, at a temperature of 565 $^\circ$C; the speed is

114-11-8/10

The Paths of Development of Turbo-pump Construction at the
"Ekonomayzer" Works.

6 000 r.p.m. and the output 3 400 kW. The arrangement of the
main feed and booster pumps relative to the turbine is illustrated
in Fig.3.

It was necessary to develop turbo-pumps for boilers operating
under super-high steam conditions, mainly at a pressure of
280 kg/cm^2 with a water temperature of 228 ^{o}C. The way in which
the problem was tackled is described. The pump was designed with
a sectionalised frame and runs at a speed of 8 500 r.p.m. Progress
that has been made in making pumps lighter and more compact is
illustrated by a table which gives relative weights and surface
areas occupied by different feed pumps.

A number of difficulties are met in the design of pumps for
super-high steam conditions and profound investigational and
experimental work had to be carried out before they could be
designed. For example, the pressure increase per stage of pump
OCПГ-320 is 70 kg/cm^2, whilst previously the highest value had
been 40 kg/cm^2. A special experimental installation with a cali-
brated driving motor was built to determine which type of stage
is the most economical.

A good deal of work had also to be done on the selection of
card 3/4 materials. A.D. Moiseyev, working at the Venyukovskiy Fittings

The Paths of Development of Turbo-pump Construction at the
"Ekonomayzer" Works.

114-11-8/10

Works (Venyukovskiy Armaturniy Zavod) did a good deal of work on
the selection of erosion-resistant materials and on the study of
factors that influence erosion. The Central Boiler and Turbine
Institute (TsKTI) also worked on this problem. However, the
information obtained was not sufficient for manufacturing the
new pump and, therefore, the works built a special installation
for testing materials in conditions of erosive wear. A rig for
testing glands has also been built. A good deal of work has been
done on the development of the small turbines required to drive
pumps.
There are 3 figures.

AVAILABLE: Library of Congress

Card 4/4

OSHEROV, S.Ya., kand.tekhn.nauk

Low capacity gas turbine engine. Trudy NTO sud.prom. 8 no.1:
231-248 '58.   (MIRA 13:5)
          (Marine gas turbines)

OSHEROV, S. Ya.

S/024/60/000/03/026/028
E194/E455

AUTHOR: None given

TITLE: The 13th All-Union Scientific Technical Session on
             Gas-Turbine Manufacture

PERIODICAL: Izvestija Akademii nauk SSSR, Otdeleniye tekhnicheskikh
             nauk, Energetika i avtomatika, 1960, Nr 3, pp 183 (USSR)

ABSTRACT: The 13th All-Union Scientific Technical Session on
             stationary and traction gas-turbines was held in Moscow
             on the 25th and 26th November 1959. It was convened by
             the Gas-Turbine Commission of the Academy of Sciences of
             the USSR, together with the State Scientific Technical
             Commission of the Council of Ministers of the USSR.
             Reports were read about the testing and operation of gas
             turbines ranging from 300 to 12000 kW and on the design
             of a 50 MW gas turbine. The session was attended by
             about 400 representatives of Research Institutes,
             Turbine and Locomotive Works, Design Institutes,
             Technical Colleges, Councils of National Economy and other
             institutes. The following reports were read:
             "Some Results Achieved in the Development of Small
Card 1/3   Gas-Turbines" by S.Ya.Osherov of the Ekonomayser Factory.

S/024/60/000/03/026/028
E194/E455

The 13th All-Union Scientific Technical Session on Gas-Turbine
Manufacture

"Results of Experimental Work of the All-Union Thermo-
Technical Institute on the Gas Turbine at the Shatsk
Underground Gasification Station of Podzemgaz" by
G.G.Ol'khovskiy.   "Start-up and Adjustment Experience
with Gas-Turbine Type GT-600-1.5 of the Neva Works,
Leningrad and some results obtained on it in the Central
Boiler Turbine Institute Investigations" by
V.G.Tyryshkin of the Central Boiler Turbine Institute.
"Adjustment and Operating Experience with Gas Turbines of
the Neva Works Leningrad" by L.A.Dorfman of the Neva
Engineering Works.   "The Production of Fuel for Traction
and Stationary Gas-Turbines" by V.Nikolayev of the
All-Union Scientific Research Institute of the Oil
Industry.   "An Experimental Investigation of Problems of
the Combustion of Natural Gas in Gas-Turbine Combustion
Chambers" by V.A.Khristich of the Kiyev Polytechnical
Institute.   "An Investigation of the Possibilities of
Developing Combustion Chambers for Marine Gas-Turbines
Card 2/3   using Models" by S.L.Briskin of the Central Scientific

S/024/60/000/03/026/028
E194/E455

The 13th All-Union Scientific Technical Session on Gas-Turbine
Manufacture

Research Institute imeni A.N.Krylov.   "Investigation
of Low-Frequency Pulsation in Gas-Turbine Combustion
Chambers" by O.V.Dubrovskiy of the Neva Engineering Works. [
The decisions of the Sessions indicated the main trends
in scientific research and experimental work for the
period 1960 to 1965.

Card 3/3

S/114/61/000/009/002/002
E194/E455

AUTHOR.   Osherov, S.Ya., Candidate of Technical Sciences

TITLE: The operation of small gas turbines with two
               combustion chambers

PERIODICAL   Energomashinostroyeniye 1961 No 9 pp 9 11

TEXT.   This article describes steps that were taken to overcome
teething troubles in 600-kW gas turbines with two vertical
combustion chambers type ГТУ-6 (GTU-6) of the "Ekonomayzer" Works.
intended for liquid and gaseous fuels.   The combustion chamber
operates at a pressure of 4 atm with mechanical atomization of
liquid fuel.   It has a thermal loading of 10.5×10^6 kcal/m^3/hr atm
and conforms to good modern practice.   In early test operation
the performance of the two chambers was not identical.   The
discharge gas temperatures could be very different and this could
lead to turbine faults, particularly if one chamber ceased to
operate.   In this case, the discharge temperature from the
operating chamber rose considerably and blading could be damaged.
This occurred because both chambers were supplied from a common
air blower.   Thus, if the temperature in one chamber drops (for
example. because of reduced fuel delivery) the resistance to flow
Card 1/2

S/114/61/000/009/002/002

The operation of small gas ...   E194/E455

through it falls and it takes more than its share of the available air. It is calculated that if one chamber is extinguished, the temperature of the gas delivered by the other can rise from 680 to 1310°C. In gas turbines with two combustion chambers, this type of behaviour cannot be altogether prevented but its consequences can be greatly alleviated. With low rates of fuel delivery, nozzles are small and must be carefully checked. Fuel should be filtered to prevent nozzle blockage. In addition, the turbine should be protected against excessive temperature difference between chambers. This has been done by a differential thermocouple arrangement which gives readings proportional to the temperature difference between the chambers. It can give warning signals or can shut-down the set in emergency. In addition, steps have been taken to ensure thorough mixing of the gas from the two chambers in the nozzle box. As a result of the modifications made, gas turbines of this type are now considered to be fully reliable. There are 5 figures.

Card 2/2

KIRILLOV, I. I., doktor tekhn. nauk, prof.; ZYSIN, V. A., kand. tekhn. nauk; OSHEROV, S. Ya., kand. tekhn. nauk

Problem concerning the cooling of a high-temperature gas turbine. Energomashinostroenie 8 no.12:7-10 D '62.
(MIRA 16:1)

(Gas turbines—Cooling)

S/114/63/000/001/004/007
D262/D308

AUTHOR: Osherov, S.Ya., Candidate of Technical Sciences

TITLE: Some problems in connection with reliability of gas
                 turbine installations (from the functional tests of
                 gas turbine installations on the plant 'Ekonomayzer')

PERIODICAL: Energomashinostroyeniye, no. 1, 1963, 35-37

TEXT: The article deals with the following defects in the
gas turbine ГТУ-6 (GTU-6) and GTU-3, revealed in the process of test-
ing: 1) Vibration at top speed (12,000 rpm) due to uneven wall thick-
ness of the compressor rotor drum; 2) Burning off and destruction of
turbine blades caused by burning of fuel entering the first stage
when starting by hand; 3) Self-ignition of the regenerator caused by
oil which occasionally enters the regenerator; 4) Formation of cracks
on the guide blades due to temperature stresses; 5) Burnout of the
nozzle apparatus; 6) Failure of the rotor wheel during rapid starting-
up and stopping operations. Various remedies are suggested including

Card 1/2

Some problems in connection ...

S/114/63/000/001/004/007
D262/D308

design alterations as well as improvements in operational techniques.
There are 6 figures.

Card 2/2

OSHEROV, S.Ya., kand.tekhn.nauk; BORISOV, V.P., inzh.; DERGACH, V.F., inzh.

GTU-15 gas turbine system manufactured by the "Ekonomaizer" factory.
Energomashinostroenie 9 no.3:8-11 Ag '63.   (MIRA 16:8)
                              (Gas turbines)

OSHEROV, S.Ya., kand. tekhn. nauk; DERGACH, V.F., inzh.;
LIBENSON, M.N., inzh.

Determination of thermodynamic indices of gas turbine systems.
Energomashinostroenie 10 no.2:46-47 F '64.   (MIRA 17:6)

TRUSHLYAK·V, V.P.; B.·L·HIR·SKIY, A.I.; S·IV·K, ·.Ya.; FIR·GL·Y·A, ··A·;
    LIF·TS, A··.; ·YT·L·, B.·.; ·OT····Y, ·.·.; ·····, ·.·.;
    YA··L'·KIY, ·.·.; F····Y, ·.K.; ·····, ·.·.; ·····, ·.Ya.;
    ··IK, V.A.; OGI·BLIN, ·.A.; KA·YK·, A.·.; BU·RGA, ·.·.;
 . BO·KR·L·, ·.A.; ···l·S·N, ·.I.

    Inventions. Energ. i elektrotekh. pro·.. no.3:48-49 ·l-S ·64.
                                          (···· ··11

L 22676-66   EWT(d)/EWT(1)/EPF(p)-2   IJP(c)   WW
ACC NR: AP6006137   (N)   SOURCE CODE: UR/0114/65/000/010/0019/0021

AUTHORS: Osherov, S. Ya. (Candidate of technical sciences); Petukhov, V. G. ;
(Engineer); Sukhova, E. V. (Engineer)

ORG: none

TITLE: Computing the temperature of the rim of a cooling blade with consideration
of a variable value of the coefficient of thermal conductivity

SOURCE: Energomashinostroyeniye, no. 10, 1965, 19-21

TOPIC TAGS: heat transfer, thermal conductivity, metal forming, cooling, cooling
rate

ABSTRACT: An approximate method of calculating temperature and its gradients at
the rims of cooling blades is presented. The method takes into account the varia-
tion of the coefficient of thermal conductivity of the material with temperature
and the variation of heat transfer coefficients between the rim and the cooling gas.
In cross section, the rim is represented as a series of rectangular sections with
metal contacts between them (see Fig. 1). The change in heat quantity between x
and $x + dx$ is expressed as $\left| \frac{\partial}{\partial x} \left(\lambda F_x \frac{\partial t}{\partial x} \right) dx, \right|$

UDC: 621.438:536.24.001.24

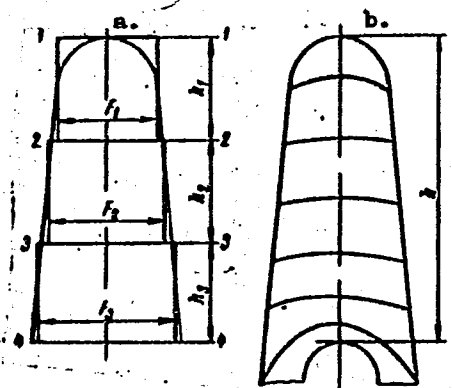Card 1/3

L 22676-66

ACC NR: AP6006137

Fig. 1. Blade edge

where x is the distance from the base of a rectangle, F_x is the rim section at x, λ is the coefficient of thermal conductivity of the material of a given rectangle, and t is the flow temperature. Heat transfer with the ambient gas is related to this heat quantity according to the equality

$$\alpha dS (t_2 - t),$$

where α is the heat transfer coefficient from the gas to the wall, dS is an element of the wall surface, and t_2 is the gas temperature. The problem in

Card 2/3

L 22676-66
ACC NR: AP6006137

one-dimensional form may be reduced to the equation

$$t_0 - t = C_1 e^{\beta x} + C_2 e^{-\beta x},$$

where $\beta = \sqrt{\lambda F}$. Boundary conditions are developed in accordance with the trapezoidal configuration of the cooling device. The system is solved and the variation of temperature is plotted against variation of heat transfer coefficient and other variables. Orig. art. has: 2 figures and 6 equations.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 004

Card 3/3 HW

L 33027-66   EWT(d)/EWT(1)   IJP(c)   WW

ACC NR: AP6014398   (N)   SOURCE CODE: UR/0096/66/000/001/0048/0051

AUTHOR: Osherov, S. Ya. (Candidate of technical sciences); Ventsyulis, L. S. (Engineer); Petukhov, V. G. (Engineer)

ORG: TsKTI

TITLE: Calculation of a cooled vane with a continuous computer

ABSTRACT: The article concerns a method of calculating the local values of the temperature of the walls of a nozzle type vane cooled by a transverse current of air, using a continuous computer. To set up the heat balance equation there is considered one element of the cooling channel with a length of dx, a height ℓ and a width S . Neglecting thermal resistance, the heat balance equation can then be written in the form

$$\frac{dt_s}{dx} = \frac{\frac{\alpha_r \alpha_s}{\alpha_r + \alpha_s}(t_r - t_s)\ell}{36000\, u\, c_{p,s}} ,$$ (1)

where t_B is the local value of the air temperature over the channel, °C;

Card 1/2   UDC: 621.165.542.46.001.24

L 33027-66

ACC NR: AP6014398

ℓ is the height of the vane, in meters; α is the local value of the heat transfer coefficient from the gas to the wall, kcal/m²-hours-°C; α_B is the local value of the heat transfer coefficient from the wall to the air, kcal/m²-hour-°C; G_B is the air flow rate through half of the vane, kg/sec; c_{pB} is the heat capacity of the air, kcal/kg-°C. Calculated results show that the temperature difference over the profile of the vane, with a constant gap for the cooling air, a gas pressure of 9 kgf/cm², and a gas temperature of 1200°C, reaches 300°. With a change in the air flow rate, the temperature difference in the vane does not change. A change in the temperature of the cooling air at the inlet to the vane (from 50 to 150°C) and a constant air flow rate and fixed gaps has only a slight effect on the temperature field in the vane. Orig. art. has: 8 formulas and 6 figures.

SUB CODE: 10,09/ SUBM DATE: none/ ORIG REF: 007

Card 2/2

L 20420-66   EWP(w)/EWP(f)/EPF(n)-2/EWP(v)/T-2/EWP(t)/EWP(n)/EWP(k)/ETC(m)-6
ACC NR,   AP6009830 (N)   SOURCE CODE: UR/0413/66/000/004/0022/0022
JD/WW/HW/EM

INVENTOR: Osherov, S. Ya.; Petukhov, V. G.; Ventsyulis, L. S.

ORG: Central Scientific Research Design and Planning Boiler and
Turbine Institute im. I. I. Polzunov (Tsentral'nyy nauchno-issledo-
vatel'skiy i proektno-konstruktorskiy kotloturbinnyy institut)

TITLE: Turbomachine nozzle blade. Class 14, No. 178827

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4,
1966, 22

TOPIC TAGS: turbine blade, turbine nozzle blade, gas turbine

ABSTRACT: The proposed nozzle blade, e.g., for gas turbines, has internal
longitudinal channels for the cooling medium which is fed to a col-
lector located outside the turbine machine (see Fig. 1). To obtain

Cord 1/2   UDC: 621—226.3—712/713

L 20420-66
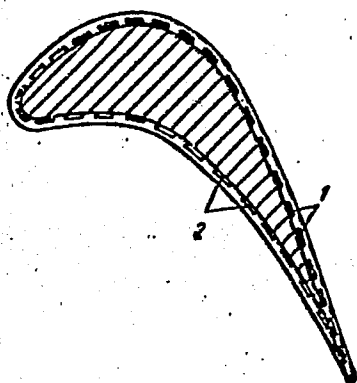ACC NR: AP6009830

Fig. 1 Nozzle blade

1 - Coolant feed channel; 2 - coolant
drain channel.

a uniform temperature field along the blade profile, the channels for
feeding and draining the coolant are arranged in sections. Each of
these sections has about the same heat transfer coefficient. Orig.
art. has: 1 figure.

[TN]

SUB CODE: 21/ SUBM DATE: 19May64/ ATD PRESS: 4/222

Turbine blade technology

Card 2/2 U1 R   19

L 47466-66   ENT(m)/EWP(w)/EWP(v)/T-2/EWP(k)/EWP(f)   IJP(c)   WW/FM
ACC NR: AP6029070

SOURCE CODE: UR/0413/66/000/014/0124/0124

INVENTOR: Kirillov, I. I.; Zysin, V. A.; Osherov, S. Ya.; Arsen'yev, L. V.

ORG: none

TITLE: High temperature steam-gas double-flow turbine. Class 46, No. 184070
[announced by the Leningrad Polytechnical Institute im. M. I. Kalinin
(Leningradskiy politekhnicheskiy institut)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 124

TOPIC TAGS: steam gas turbine, double flow turbine, blade cooling, cooled blade,
gas turbine, turbine, turbine blade
                steam

ABSTRACT: The proposed high temperature steam-gas double-flow turbine consists of a
housing containing a centripetal rotor wheel equipped with hollow, cooled blades with
separate flow of channels for the wet (or superheated) steam and the gas. In order
to ensure a maximum temperature gradient in the high temperature range, and to
simplify the design, the blades are made of two parts, forming inlet slots for

Card 1/2

Card 2/2 mjs

ACC NR: AP7009592

SOURCE CODE: UR/0096/67/000/0 /0044/0047

AUTHOR: Kirillov, I. I. (Doctor of technical sciences); Zysin, V. A. (Doctor of technical sciences); Osherov, S. Ya. (Candidate of technical sciences); Arsen'yev, L. V. (Candidate of technical sciences); Petrov, Yu. Yo. (Engineer)

ORG: none

TITLE: Selection of optimal parameters for a high temperature steam-gas installation using a plan developed by the central boiler-turbine scientific research institute and the Leningrad Polytechnical Instituture

SOURCE: Teplo energetika, no. 1, 1967, 44-47

TOPIC TAGS: thermoelectric power plant, steam turbine, gas turbine, heating engineering, cooling, engine cooling system

SUB CODE: 21,10,13

ABSTRACT: The specific features of a method of calculating the parameters of a steam-gas installation are presented and some results of calculation are outlined. In its simplest variant, the steam-gas installation described provides for attainment of an efficiency of approximately 50% with a gas temperature of 1200°C. The optimal degree of gas pressure increase is 9, which considerably facilitates the problems of cooling the high temperature gas turbine and designing turbine machinery. The efficiency of the dual installation depends very little on the steam parameters. High efficiency values can be produced at a steam temperature of 540°C. With increasing initial gas temperature, the thermal effectiveness of the installation increases. In its simplest variant, the efficiency of the installation reaches 55-56% at a

Card 1/2

UDC: 621.438+621.165.001.24

0930 11.30

ACC NR: AP7009592

temperature of 1500°C. The introduction of intermediate heating of the gas provides a further increase in efficiency. Orig. art. has: 7 figures, 2 formulas and 2 tables. [JPRS: 40,102]

Card 2/2

5(4)

AUTHOR: Osherov, V. I.   SOV/20-130-1-33/69

TITLE: On the Theory of Chemical Adsorption

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 1, pp 117-119 (USSR)

ABSTRACT: The author reports on an attempt to use the Bloch functions
            directly for the description of a crystal-shaped adsorbent which
            allows to take into account the interaction of the adsorbed
            particles (Refs 6-11). For a system of particles which are
            adsorbed on the crystal surface, the Hamiltonians are written
            down for the non-excited crystal, for the system of the adsorbed
            particles without taking into account their interaction with the
            crystal and finally for the mentioned system adsorbate-adsorbent,
            furthermore for the corresponding eigenfunctions. The solutions
            are deduced for a completely occupied system, for a single
            adsorbed particle, and for the adsorption of several neighboring
            particles, as well as for the differential adsorption heats.
            The author establishes that even without the assumption of a
            direct interaction of the adsorbed particles independent of the
            presence of the adsorbent this interaction becomes manifest by

Card 1/2

On the Theory of Chemical Adsorption   SOV/20-130-1-33/69

the chemical bond with the crystal and that it has the order
of magnitude of the chemosorption energy. In conclusion it is
mentioned that the author thanks Professor M. I. Temkin,
Professor J. J. Koutecky and T. K. Rebane for a discussion.
There are 11 references, 3 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im.
L. Ya. Karpova (Scientific Research Institute for Physical
Chemistry imeni L. Ya. Karpov)

PRESENTED: July 30, 1959 by A. N. Frumkin, Academician

SUBMITTED: July 6, 1959

Card 2/2

S/020/60/132/04/41/064
B004/B007

24.7400

AUTHOR: Osherov, V. I.

TITLE: The Effect of the Reciprocal Influence of Adsorbed Particles

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 4,
            pp. 884-887

TEXT: The author combines the reciprocal influence of chemically adsorbed
particles with the delocalization of the wave function of the electrons in
the crystal of the adsorbent, in which case a repulsion occurs between the
particles, which decreases much more slowly with the distance Δ than
$\exp(-\Delta/a_0)$ (a_0 - Bohr radius). For the purpose of investigating the
dependence of the differential adsorption heat on the degree of surface
occupation Θ, the method of localized states in molecules and crystals
is applied to adsorption. The author proceeds from the Hamiltonian of the
electron in the system adsorbed substance - adsorbent and derives equation
(12) for the states on the surface of the adsorbent, and equation (13) for
the eigenvalues. The degree of surface occupation Θ is taken into account.
Further, equation (23) is derived for the differential adsorption heat Q,

Card 1/2

The Effect of the Reciprocal Influence of   S/020/60/132/04/41/064
Adsorbed Particles   B004/B007

and from the quantity $dQ/d\Theta$ the series $Pt > W > Ta > Pd > Ni > Co > Fe$ is
found for metals, and the series $N_2 > H_2 > CO > O_2$ for gases. The author
thanks Professor M. I. Temkin for his discussion. There are 6 references $\swarrow$
3 Soviet and 3 British.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-
             chemical Institute imeni L. Ya. Karpov)

PRESENTED: January 22, 1960, by A. N. Frumkin, Academician

SUBMITTED: January 18, 1960

Card 2/2

S/020/60/135/005/032/043
B004/B075

_S. 4700_

AUTHOR: Osherov, V. I.

TITLE: A Possibility of Chemical Adsorption in Quantum Theory

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol.135, No. 5,
               pp. 1168-1171

TEXT: The author proceeds from a previous paper (Ref. 3) describing a
calculation of the adsorption heat. In the present paper, a method is
explained for calculating adsorption heat. Proceeding from the wave func-
tions Ψ_o, Ψ of the electron, the shift of the electron energy of the
crystal under the formation of defects is investigated. The following re-
lation is written: $\psi_{\epsilon_i} = A\psi_k /(1 - \lambda G_{\epsilon_i} v)$ (11), where ψ_{ϵ_i} are the wave fun-
tions of the electron; G_{ϵ_i} is the Green function; v is the potential; ψ_k
are the Bloch functions for the wave vector within the valence band; and
A is a phase factor. The author obtains an equation for the shift ΔE of
the vibrational component of the free lattice energy, as has been found
Card 1/2

A Possibility of Chemical Adsorption in Quantum S/020/60/135/005/032/043
Theory   B004/B075

already by I. M. Lifshits (Refs. 6, 7). Thus, adsorption heat can be cal-
culated from the wave functions (11). M. I. Temkin and V. V. Tolmachev are
thanked for a discussion. There are 7 references: 2 Soviet, 2 US, 2 British,
and 1 Italian.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova
                 (Physico-chemical Institute imeni L. Ya. Karpov)

PRESENTED: June 24, 1960, by V. A. Kargin, Academician

SUBMITTED: June 23, 1960

Card 2/2

OSHEROV, V. I.

Cand Phys-Math Sci - (diss) "Theory of the displacement of the crystal lattice energy due to defects, and problems of the calculation of bond energy in chemisorption." Moscow, 1961. 9 pp; (Academy of Sciences USSR, Inst of Chemical Physics);150 copies; price not given; (KL, 6-61 sup, 194)

89210

S/056/61/040/001/016/037
B102/B204

$24.7100 \ (1043, 1158, 1469)$

AUTHOR: Osherov, V. I.

TITLE: Calculation of the energy shift of a system of electrons in
                a lattice during the formation of defects

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40,
                no. 1, 1961, 152-155

TEXT: The calculation of the shifts of the various thermodynamic quantities
belongs to the most important problems in the theory of local disturbances
in crystals; it was first raised by I. M. Lifshits and solved, viz. in a
general form. In the present paper a special problem is studied, namely
the shift of the electron energy of the crystal during the formation of
defects. This is, above all, of importance with respect to the possibility
of determining the contribution to the electronic specific heat of the
crystal, which is due to lattice defects. A system of non-interacting
electrons, is studied in a lattice in single-electron approximation. For
the Schrödinger equation of the electron wave function in a disturbed
lattice, $(H_0 + V)\psi_k = \varepsilon_k' \psi_k$ is set up, where H_0 comprises the kinetic energy,

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B102/B204

Calculation of the energy...

and the periodic potential averaged over the lattice, ε_k - electron
spectrum, V - perturbation potential, ε_k' and φ_k - perturbation eigenvalues
and eigenfunctions respectively. The problem consists in calculating the
shift of the energy ΔE of the electron system: $\Delta E = \int Sp(P_\varepsilon - P_\varepsilon')\Omega'(\varepsilon)d\varepsilon$,
where P_ε and P_ε' are the operators of projection onto the states ψ_k and φ_k
and $\Omega(\varepsilon) = -kT \ln(1 + e^{(\mu - \varepsilon)/kT})$, μ is the chemical potential, ψ_k - Bloch
function. Using the results obtained in Ref. 3, one obtains
$Sp(P_\varepsilon - P_\varepsilon') = \frac{1}{\pi}\arg(1 + \int \frac{c(\varepsilon')}{\varepsilon' - \varepsilon - i0}d\varepsilon')$, $c(\varepsilon) = \int_{\varepsilon_{\vec{k}} = \varepsilon} - \frac{d\omega}{|\nabla\varepsilon_{\vec{k}}|}$, and thus

$\Delta E = 2[\Omega(\varepsilon_0) - \Omega(\varepsilon_g)] + \frac{\pi}{2}\int \arctan[\pi\alpha c(\varepsilon)/(1 + \alpha P \int \frac{c(\varepsilon')}{\varepsilon' - \varepsilon}d\varepsilon')]\Omega'(\varepsilon)d\varepsilon$. The
level of the localized state, ε_0, may be determined from $1 + \alpha \int dc(\varepsilon)/(\varepsilon - \varepsilon_0) = 0$,
ε_g is the upper or the lower limit of the band, according to the sign of
α, $\alpha = \langle\psi_k|V|\psi_k\rangle$. In the following, the author discusses criteria for the

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Calculation of the energy...

applicability of this "onedimensional perturbation approximation". Thus, e.g., the equation for t_0 in the case of a sufficiently small α, has no solution, so that the approximation is not applicable. As criterion for the applicability one obtains: $1/\alpha < P \int dt' c(t')/(t' - t_g)$ or with $t = t^0 + \beta f(\vec{k})$, $\vec{k}$ - quasimomentum, β - energetic width of the band, $1/\alpha_0 < const/\beta$, and as the constant is of the order of one, $\alpha_0 \gg \beta$. Now the contribution of a small number (η) of lattice defects to the electronic specific heat of the lattice at low temperatures is studied. If $\alpha_0 \gg \beta$, one obtains:

$\Delta c = \frac{2}{3}(\pi k)^2 \eta T \Phi_0(\varepsilon_F)$, where $\Phi_0(t) = \left\{ [Im\ I_t(0)]' Re\ I_t(0) - [Re\ I_t(0)]' Im\ I_t(0) \right\} / |I_t(0)|^2$.

If, on the other hand, $\beta \gg \alpha_0$, then $\Delta c = \frac{2}{3}(\pi k)^2 \alpha_0^* \eta [Im\ I_{t_F}(0)]' T$; ($\varepsilon_F$ - Fermi energy). These two cases are, for instance, realized e.g. in dielectrics and metals respectively. The author thanks Professor I. M. Lifshits for valuable advice. There are 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya: Karpov)

SUBMITTED: June 24, 1960

Card 3/3

OSHEROV, V.I.

Theory of local perturbations in large systems. Zhur. eksp. i
teor. fiz. 40 no.4:1166-1171 Ap '61.   (MIRA 14:7)

1. Fiziko-khimicheskiy institut imeni L.Ya. Karpova.
                        (Fermi surfaces)

S/020/63/148/005/023/029
B190/B102

AUTHOR: Osherov, V. I.

TITLE: Theory of monomolecular reactions in solids

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 5, 1963,
              1118-1120

TEXT: Owing to the lack of a microscopic theory of chemical reactions in
solids the author derives some general relations describing mono-molecular
reactions and studies their deviations from those corresponding in the
gaseous state. The Maxwell-Boltzmann distribution assumed is also taken
to be conserved during the process. The rate constant is given as
$\widetilde{k} = \varkappa \frac{kT}{\hbar} \frac{F^{\neq}}{F} \exp(-E_0/kT)$. When the distribution function in the transi-
tional state is given by $F^{\neq} = \prod_{\vec{f}} (1-e^{-h\nu^{\neq}(\vec{f})/kT})^{-1}$, $\vec{f}$ denoting the quasi-
momentum, and when, for sake of simplicity, only one vibrational branch
is considered, then

$$\frac{F^{\neq}}{F} = (1 - e^{-h\nu_{\varepsilon}/kT}) \exp\left(- \frac{\Delta E'(T) - \Delta E'(0)}{kT}\right). \qquad (12)$$

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Theory of monomolecular reactions ...

$$S/020/63/148/005/023/029$$
$$B190/B102$$

and $\tilde{k} = Ae^{-\Delta E/kT}$ where

$$A = \varkappa \frac{kT}{\hbar} e^{-\Delta E'(T)/kT} (1 - e^{-\hbar v_s/kT}).$$
(14), or, at

sufficiently high temperatures, $A = v_s e^{-\Delta E'(T)/kT}$ $(\varkappa \sim 1)$. (15) $\Delta E'$

characterizes the total phonon energy shift at $T \neq 0$ and at $T = 0$. In these considerations the number of the nonreacting neighbors of the reacting particle was assumed to be infinitely large. A comparison with the gaseous state shows that there exists a formal similarity. Since the activation energy in the solid phase is mainly due to the local electrons, the activation energy of a certain reaction in a solid will generally be higher than that of the corresponding reaction in the gaseous phase.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: July 20, 1962, by V.N. Kondrat'yev, Academician

SUBMITTED: July 10, 1962

Card 2/2

OSHEROV, V.I.

Kinetics of elementary processes on the surface of solids.
Teoret. i eksper. khim. 1 no.1:66-70 Ja-F '65.   (MIRA 18:7)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.

OSHEROV, V.I.

Theory of chemical reactions in solids. Parts 1-2. Teoret. i
eksper. khim. 1 no.4:436-451 '65.   (MIRA 18:10)

1. Institut khimicheskoy fiziki AN SSSR, Moskve.

L 9607-66   EWT(1)/EWA(m)-2   IJP(c)   AT

ACC NR: AP5026608   SOURCE CODE: UR/0056/65/049/004/1157/1160

AUTHOR: Osherov, V. I.

ORG: Institute of Chemical Physics of the Academy of Sciences SSSR (Institut khimi-
cheskoy fiziki Akademii nauk SSSR)

TITLE: Transitions of electrons to a continuous spectrum

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965,
1157-1160

TOPIC TAGS: electron spectrum, continuous spectrum, light dispersion, electron emis-
sion, ion interaction, negative ion, collision

ABSTRACT: The probability for the transition of an electron to a continuous spectrum
with arbitrary dispersion law is calculated on the basis of the Landau-Zener theory.
Unlike an earlier similar calculation by Yu. N. Demkov (ZhETF v. 46, 1126, 1964), the
model used for the electron detachment in collision between negative ions and atoms
is more general and includes no δ-function potential. The dependence of the inter-
action matrix elements on the electron momentum, which is important in this problem,
is taken into account, and the problem is formulated in such a way that the result
is equally applicable to the ionization of negatively charged impurities in solids.
The modifications that must be introduced in Demkov's theoretical predictions are in-
dicated. Author is grateful to Ye. Ye. Nikitin for advice and a discussion. Orig.
art. has: 1 figure and 12 formulas.

SUB CODE: 20/   SUBM DATE: 12Apr65/   ORIG REF: 001/   OTH REF: 003

Card 1/1

L 29227-66   EWP(j)/EWT(m)/ETC(f)/T   IJP(c)   RM/DS/WW

ACC NR: AP6019351   SOURCE CODE: UR/0379/65/001/004/0436/0444

AUTHOR: Osherov, V. I.

ORG: Institute of Chemical Physics, AN SSSR, Moscow (Institut khimicheskoy fiziki
AN SSSR)

TITLE: Theory of chemical reactions in solids. I.

SOURCE: Teoreticheskaya i eksperimental'naya khimiya, v. 1, no. 4, 1965, 436-444

TOPIC TAGS: chemical reaction, adiabatic approximation, activation energy, diamond,
luminescence center

ABSTRACT: The probability of the elementary act in a lattice
modeled by the processes of defect formation and transition of an
impurity between two equilibrium positions is calculated in an
adiabatic approximation. The quasi-activation character of the
process is established at high temperatures. The discussion pre-
sented indicates that the transitions studied at high temperature
occur by a "quasi-activation" method, or the activation energy
during temperature change is altered gradually, an effect which
has been observed in experiments. Thus, a gradual change in the
activation energy of a thermal transition in the luminescent cen-
ters of diamond has been observed. This result is the consequence
of the local anharmonism summarized in all orders, which results
in the localization of pairs in the transition process. Orig. art. has: 1 figure and
46 formulas. [JPRS]

SUB CODE: 07, 20 / SUBM DATE: 31Dec64 / ORIG REF: 003 / OTH REF: 001
Card 1/1

L 29137-66   EWP(j)/EWT(m)/ETC(m)-6/T/ RM/WW

ACC NR: AP6018673   SOURCE CODE: UR/0379/65/001/004/0445/0451

AUTHOR: Osherov, V. I.

ORG: Institute of Chemical Physics, AN SSSR, Moscow(Institut khimicheskoy fiziki, AN SSSR)

TITLE: Theory of chemical reactions in solids. II

SOURCE: Teoreticheskaya i eksperimental'naya khimiya ., v.1, no.4, 1965, 445-451

TOPIC TAGS: physical diffusion, phonon, chemical reaction

ABSTRACT: The probability W of a model elementary chemical act caused by fluctuations in a solid is discussed. The relationship of W to the contant bond of phonons is shown mathematically. The possibility of anomalous diffusion/kinetics is established. The author thanks the participants of the seminar conducted by Professor N. D. Sokolov for discussion of the results of the work.

Orig. art. has: 39 formulas. [JPRS]

SUB CODE: 07, 20 / SUBM DATE: 3Dec64 / ORIG REF: 004 / OTH REF: 004

Card 1/1 CC

OSHEROV, V.I.

Electron transition to a continuous spectrum. Teoret. i
eksper. khim. 1 no. 5:680-683 '65   (MIRA 19:1)

1. Institut khimicheskoy fiziki AN SSSR, Moskva. Submitted
July 20, 1965.

L 09374-67   EWT(1)   IJP(c)   AT

ACC NR: AP6023204

SOURCE CODE: UR/0020/66/168/006/1291/1293

AUTHOR: Oshcrov, V. I.

ORG: none

TITLE: Transition of electron to the continuous spectrum

SOURCE: AN SSSR. Doklady, v. 168, no. 6, 1966, 1291-1293

TOPIC TAGS: electron spectrum, continuous spectrum, quantum theory, electron interaction

ABSTRACT: In view of the fact that the first analysis of the transition to the continuous spectrum, carried out by Yu. N. Demkov (ZhETF v. 46, 1126, 1964), was made under a number of simplifying assumptions, the author considers in the quantum formulation the motion of nuclei when one linear term interacts with the continuum. The terms corresponding to the motion of the electron in the continuous spectrum are assumed to be noninteracting with one another and to have zero slope. The system of quantum equations for the motion of the nuclei under this condition is solved in the momentum representation. The solution shows directly that no free electrons with energy larger than the energy of the nuclei participating in the process can be produced. Expressions are obtained for the total probability of electron detachment as a function of the energy of the nuclei, which is shown to have an anomalous behaviro. The probability has a maximum at an energy approximately equal to 0.6 of the binding energy, and a resonant character at small distances from the maximum. When the masses

UDC: 530.145.61

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L 09374-67

ACC NR: AP6023204   / |

of the colliding nuclei are nearly equal, the energy of the incoming atom must slightly
exceed the binding energy of the electron in order for the resonance to be observed.
Since such an anomalous behavior of the probability is also obtained with other com-
putational models, it is proposed that it can be observed experimentally. The author
thanks Ye. Ye. Nikitin for advice and a discussion. This report was presented by
Academician V. N. Kondrat'yev 13 October 1965. Orig. art. has: 9 formulas.

SUB CODE: 20/   SUBM DATE: 02Aug65/   ORIG REF: 002

Card 2/2 JC

ACC NR: AP6036975   (A,N)   SOURCE CODE: UR/0181/66/008/011/3295/3298

AUTHOR: Osherov, V. I.

ORG: Institute of Chemical Physics AN SSSR, Moscow (Institut khimicheskoy fiziki AN SSSR)

TITLE: Nonadiabatic transitions in solids

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3295-3298

TOPIC TAGS: ionic crystal, lithium compound, nonadiabatic process, phase transition, potential barrier, quantum theory

ABSTRACT: The author obtains an exact solution of the quantum-mechanical problem of nonadiabatic transition in ionic crystals, such as Li^+H^-, which are capable of decomposing quite rapidly during heating. A simplified model is used, involving a single parabolic Li^+ + H^- term, whose oscillations are neglected, interacting with an almost-periodic potential (the term Li + H), which is of the Kronig-Penney type. Further simplification is effected by replacing the parabolic term with two linear terms, in view of the small magnitude of the transition region. The calculation makes use of the Floquet theorem and of a procedure described by the author elsewhere (ZhETF v. 49, 1157, 1965; ZhTEKh, v. 1, 680, 1965). The final equation obtained for the transition probability goes over into the well known Landau-Zener formula when

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ACC NR: AP6036975

the thickness of the Kronig-Penney potential barrier vanishes. The difference between the solution for gases and solids is emphasized. The author thanks Ye. Ye. Nikitin for a discussion. Orig. art. has: 8 formulas.

SUB CODE: 20/ SUBM DATE: 03Jan66/ ORIG REF: 004

Card 2/2

OSHEROV, V. Ye. and TEMPER, I. Yu,

"The Radio Amateur's Handbook" (Spravochnik radiolyubitelya), Gostekhizdat Ukrainy, 194?, 271 pp.

28942

S/114/61/000/010/002/005
E194/E155

26.2124

AUTHORS: Dorfman, L.A., Candidate of Phys.Mat.Sciences, and
             Osherov, Yu.S., Engineer

TITLE: An investigation of air-jet cooling of gas-turbine
             discs

PERIODICAL: Energomashinostroyeniye, no.10, 1961,   23-26

TEXT: This paper was presented at the 14th Scientific-
Technical Session of Komissiya po gazovym turbinam AN SSSR
(Commission on Gas Turbines, AS USSR), held March 29, 1961.
Gas turbines now produced by NZL use air-jet cooling of the discs,
and work was carried out to study the efficiency of this type of
cooling. A detailed study was made of an experimental gas turbine
type ГТ-700 (GT-700) illustrated in Fig.1. In this figure the
inscriptions round the outside give the amount of cooling air
injected at each place in kg/hour. The remaining figures are
temperatures. The tests were made at a speed of 5000-6000 r.p.m.
with cooling air injected in the following ways: 1) on the rim
of the disc from the front through two holes of 8 mm and 11 mm dia,

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